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THE DISTRIBUTION AND TAXONOMY OF *TAMIAS STRIATUS* AT THE SOUTHERN LIMITS OF ITS GEOGRAPHIC RANGE

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Abstract.—Thirteen characters (4 external, 9 cranial) were subjected to univariate and multivariate analyses in order to determine the taxonomic relationships among the southernmost populations of *Tamias striatus.* Information is presented also on the ecology and distribution of the eastern chipmunk in the southern parts of its geographic range.

Tamias striatus ranges across much of eastern North America from Manitoba through Quebec to southern Labrador, south through Virginia, and southwest across central North Carolina, western South Carolina, and central Georgia, Alabama, and Mississippi to Louisiana (Hall and Kelson, 1959). The species was not reported from west Florida and adjacent Alabama until 1962 (Stevenson, 1962).

Eleven subspecies are recognized currently (Hall and Kelson, 1959, Long, 1971). There is no recent treatment of southern chipmunks other than the reviews of distribution and taxonomy of *Tamias* in Louisiana and adjacent areas by Lowery (1943, 1974). The presence of a population of eastern chipmunks in Florida stimulated us to review the ecology, distribution, and taxonomic status of the southernmost populations of *T. striatus.*

Methods and Materials

Field studies of *T. striatus* were carried out intermittently from 1968 through 1976. The purposes of field work were to obtain specimens for study, to document the southern distributional limits of the species, to determine the distribution and status of the species in west Florida, and to obtain general information on the ecology of the species in the most southern portions of its range. Field notes, catalogues, and specimens collected are deposited at the National Fish and Wildlife Laboratory, National Museum of Natural History, and the Museum of Natural History, Tulane University.

Specimens, consisting of study skins, skulls, or both, were examined from 75 localities. Because of small sample sizes, it was necessary to pool data from some localities for statistical analysis. The 13 samples analyzed are listed below. Precise localities are given in the list of specimens examined.

Sample A.—Tishomingo County, Mississippi. Sample B.—Sunflower, Bolivar, and Coahoma Counties, Miss. Sample C.—Yazoo and Holmes Counties, Miss. Sample D.—Warren and Claiborne Counties, Miss. Sample E.—Lauderdale County, Miss. Sample F.—Copiah County,

Miss. Sample G.—Adams County, Miss. Sample H.—Lincoln County, Miss. Sample I.—Jones County, Miss. Sample J.—Wilkinson County, Miss. Sample K.—Okaloosa County, Florida, and Covington County, Alabama. Sample L.—Clark, Gordon, Hall, Towns, and Macon Counties, Georgia. Sample M.—East Baton Rouge, East Feliciana, and West Feliciana Parishes, Louisiana.

Specimens with all cheek teeth fully erupted were considered adults. All measurements were recorded in millimeters. External dimensions (total length, tail length, hindfoot length, ear length) were taken from the specimen labels. The following skull measurements were taken to the nearest 0.05 mm with dial calipers.

Greatest length of skull.—The overall length from the anterior tip of the nasals to the posterior bulge of the braincase.

Zygomatic breadth.—The greatest distance across the zygomatic arches perpendicular to the long axis of the skull.

Interorbital breadth.—The least distance across the top of the skull between the orbits.

Cranial breadth.—The greatest distance across the braincase immediately posterior to the zygomatic arches.

Cranial depth.—The distance from a line connecting the tips of the upper incisors with the most ventral portion of the posterior part of the cranium to the highest part of the cranium.

Maxillary tooth row length.—The alveolar distance from the anterior border to the posterior border of the upper cheek teeth.

Nasal length.—The measure from a line connecting the anteriormost parts to a line connecting the posteriormost extensions of the nasal bones.

Nasal width.—The distance from the most lateral points of the two nasal bones.

Mandibular tooth row length.—The alveolar distance from the anterior border to the posterior border of the lower cheek teeth.

The initial statistical analysis included computation of standard statistics (range, mean, standard deviation, standard error of the mean) for 13 variables of the specimens from each of the individual or pooled samples. These computations were made using a computer program (BMDO1D) developed at the Health Sciences Computing Facility, UCLA (Dixon, 1973).

Unknown and questionable specimens were allocated and among-group relationships were examined for specimens with complete data in a stepwise discriminant function analysis BMDO7M (Dixon, 1973). Wilson (1973) discussed this method of allocating specimens and provided some additional references.

Museums with specimens examined in this study are identified as follows: Museum of Zoology, Louisiana State University (LSUMZ); Mississippi State Wildlife Museum (MSWM); National Museum of Natural History, Biological Survey Collection (USNM); Museum of Natural History, Tulane University (TU); University of Georgia (UG).

Specimens examined (total 331).—LOUISIANA: East Baton Rouge Parish: Mississippi River, 2 mi W Baton Rouge, 1 (LSUMZ); 3.5 mi S Port Hudson, 1 (LSUMZ). East Feliciana Parish: 27 mi N Baton Rouge, 1 (LSUMZ); 3 mi NW Port Hudson, 1 (LSUMZ). West Feliciana Parish: 5 mi SE Angola, 1 (LSUMZ); Bains, 7 (TU), 2 (LSUMZ); Cornor, 12 (LSUMZ); 1 mi W Laurel, 1 (LSUMZ); 9 mi NW St. Francisville, 1 (LSUMZ); 6 mi N St. Francisville, 2 (LSUMZ); 5 mi NW St. Francisville, 1 (LSUMZ); 10 mi NE St. Francisville, 1 (LSUMZ); St. Francisville, 3 (LSUMZ); 1 mi E St. Francisville, 1 (LSUMZ); 2 mi E St. Francisville, 1 (LSUMZ); 3 mi S, 2 mi E St. Francisville, 1 (LSUMZ); 5 mi ENE St. Francisville, 1 (LSUMZ); 5.5 mi ENE St. Francisville, 1 (LSUMZ); 2 mi W St. Francisville, 1 (LSUMZ); 1 mi W St. Francisville, 1 (LSUMZ); 5.6 mi ENE St. Francisville, 1 (LSUMZ); 38 mi NNW Baton Rouge, 1 (LSUMZ); Tunica, 5 (LSUMZ); 5 mi S Tunica, 2 (LSUMZ); 1 mi N Jct. La. Hwy. 66 and 969, 1 (TU). MISSISSIPPI: Adams County: Natchez, 14 (MSWM); Auburn, 2 (MSWM); no locality, 7 (MSWM). Bolivar County: 2.5 mi N Rosedale, 1 (LSUMZ); Bogue Phalia, 6 (LSUMZ), 5 (MSWM). Claiborne County: Rocky Springs, 4 (MSWM). Coahoma County: Sunflower River, 5 (MSWM). Copiah County: Arista Ranch, 2 (MSWM); Crystal Springs, 1 (MSWM); Smyrna, 3 (MSWM). Holmes County: No locality, 1 (MSWM). Jones County: Boquehoma, 5 (MSWM); no locality, 1 (MSWM). Lauderdale County: Cauys Merridale, 1 (MSWM); Cow Creek near Mehon, 1 (MSWM); Meridian, 2 (MSWM); no locality, 3 (MSWM). Lincoln County: Auburn, 4 (MSWM). Sunflower County: Sunflower River, 1 (MSWM). Tishomingo County: 12 mi NE Burnsville, 2 (MSWM). Warren County: Fort Hill, 1 (MSWM); NE Military Park, 1 (MSWM); Riley's Area, 2 (MSWM); Yazas Canal, 1 (MSWM). Wilkinson County: No locality, 1 (LSUMZ), 4 (MSWM); 6.7 mi W Centerville, 1 (TU); Percy's Creek, 1 (MSWM); Tunica Hills, 1 (LSUMZ); 8 mi NE Woodville, 2 (TU); 2 mi SE Woodville, 10 (USNM), 15 (TU); 3.3 mi SE Woodville, 1 (TU); 6 mi SE Woodville, 4 (USNM), 4 (TU); 1.5 mi W Woodville, 2 (TU); 4.1 mi SW Woodville, 1 (TU); 5 mi W Woodville, 1 (TU); 5.9 mi W Woodville, 1 (TU); 9 mi SW Woodville, 3 (TU); 11 mi SW Woodville, 50 (TU); 12.4 mi W Woodville, 28 (USNM). Yazoo County: Phoenix, 28 (MSWM); Yazoo City, 1 (LSUMZ). FLORIDA: Okaloosa County: 5 mi SW Laurel Hill, 2 (USNM); 7 mi SW Laurel Hill, 7 (USNM), 11 (TU). ALABAMA: Covington County: 5 mi SE Wing, 1 (TU). GEORGIA: Clark County: Athens,

13 (UG); no locality, 2 (UG). Gordon County: Plainville, 1 (UG). Hall County: About 5 mi N Gunville, 1 (UG). Macon County: Highlands, 5 (UG). Towns County: Enota Gaade, 1 (UG).

Results and Discussion

The specimens examined in this study encompass most known records of *T. striatus* at the southern limits of its range. For some additional summaries of records of the species in Mississippi, see the works by Wolfe (1971) and Kennedy, Randolph, and Best (1974). Details of the occurrence of the eastern chipmunk in Louisiana are provided by Lowery (1974).

The population of *T. striatus* that occurs in a restricted area of northern Okaloosa County, Florida, and adjacent southern Covington County, Alabama, seemingly is isolated from other populations of eastern chipmunks, although it may be at the southern end of a peninsula of distribution extending from the more northern range of the species. There are reports of chipmunks elsewhere in southern Alabama (Stevenson, 1962), and people living in the outer suburbs and rural areas north and east of Mobile Bay sometimes comment about the presence of "ground squirrels" in the region. However, extensive field activities and investigations of mammals in west Florida and southern Alabama in recent years have yielded no concrete evidence of *Tamias* (Linzey, 1970). The unusual ecological conditions of the panhandle of Florida and the patterns of distribution of numerous animals and plants that occur there were discussed by Neill (1957). Some additional discussions of the mechanisms for development of the distributions of animals in west Florida and adjacent Alabama were presented by Collette and Yerger (1962).

In Wilkinson County, Mississippi, and adjacent Louisiana eastern chipmunks occur mostly in ravines and along small streams bordered by considerable amounts of deciduous hardwood vegetation. The ravines typically have dense growths of ferns and underbrush. The animals occasionally are found in strips of vegetation either alongside or between fields, especially pecan groves. In west Florida *Tamias* is found in a rather mature deciduous woods. The vegetation of this area includes *Pinus glabra, Taxodium distichum, Sabal minor, Smilax* sp., *Myrica cerifera, Carya* sp., *Carpinus caroliniana, Betula nigra, Fagus grandifolia, Quercus alba, Q. stellata, Q. lyrata, Q. virginiana, Q. nigra, Magnolia grandiflora, Illicium floridanum, Asimina parviflora, Persea borbonia, Itea virginica, Hamamelis virginiana, Liquidambar styraciflua, Crataegus marshallii, C. lacrimata, Amelanchier arborea, Prunus angustifolia, Gleditsia triacanthos, Rhus radicans, Cyrilla racemiflora, Ilex cassine, I. vomitoria, I. opaca, Euonymus americanus, Acer floridanum, A. drummondii, Aesculus pavia, Parthenocissus quinquefolia, Vitis rotundifolia, Hypericum* sp., *Cornus florida, Nyssa aquatica, Kalmia*

Table 1. Variation of external characters of *Tamias striatus* from Wilkinson County, Mississippi. The numbers for each measurement include the mean plus and minus two standard errors, the extremes, the sample size, and the standard deviation.

Sex	Total length	Tail length	Hindfoot length	Ear length
Males	245.95 ± 8.04	83.90 ± 6.50	36.20 ± 0.56	19.83 ± 0.36
	205.00–275.00	40.00–105.00	34.00–38.00	18.00–21.00
	21 18.42	21 14.91	24 1.41	24 0.91
Females	251.21 ± 8.60	89.34 ± 5.20	36.03 ± 0.48	19.59 ± 0.74
	220.00–300.00	58.00–115.00	34.00–38.00	17.00–28.00
	23 20.65	23 12.49	27 1.25	27 1.92

latifolia, *Rhodendron canescens*, *R. austrinum*, *Vaccinium* sp., *Diaspyros virginiana*, *Symplocos tinctoria*, *Halesia diptera*, *Styrax grandifolia*, *Fraxinus* sp., *Chionanthus virginica*, *Gelsemium sempervirens*, *Callicarpa americana*, *Lonicera sempervirens*, and *Viburnum dentatum*. Most of the animals collected or observed in west Florida were near the edges of a low area that is flooded occasionally by the Yellow River. Stevenson (1962) noted that eastern chipmunks in west Florida occurred infrequently in either pine woods or deciduous woods without an undergrowth of yaupon (*Ilex vomitoria*).

Tamias striatus seems unusually secretive and difficult either to observe or capture in the most southern areas where it occurs. For example, in Wilkinson County, Mississippi, most animals were encountered as they moved along the upper levels of the sides of ravines, usually just beneath the overhanging edges. In Okaloosa County, Florida, nearly all the chipmunks found were at the entrances to burrows. Stevenson (1962:110) reported that "Chipmunks were heard frequently, but seen rarely, for a period of two years before a specimen could be secured." Following the report by Stevenson (1962) of the presence of *Tamias* in west Florida, numerous searches, including both trapping and hunting efforts, were made for chipmunks in the area, but no animals were obtained until October, 1971.

At the southern edge of its geographic range, *T. striatus* is active outside of the burrows throughout the year. Specimens were obtained by shooting in each month of the year; most animals were taken in October, and the fewest specimens were collected during July. Lowery (1974) reported a summer lull in activity of *Tamias* in Louisiana, and Dunford (1972) documented a summer lull during July for chipmunks studied in New York. Our observations reveal that chipmunks were most active in the fall when cold fronts were present, feeding and carrying food. Most animals taken at this time of the year were carrying acorns and pecans in their cheeks. Chipmunks seemed to range greater distances from the entrances to burrows, and

Table 2. Variation of skull characters of *Tamias striatus* from Wilkinson County, Mississippi. The numbers for each measurement include the mean plus and minus two standard errors, the extremes, the sample size, and the standard deviation.

Sex	Greatest length of skull	Zygomatic breadth	Interorbital breadth	Cranial breadth	Cranial depth
Males	43.16 ± 0.64	23.47 ± 0.58	12.11 ± 0.28	17.45 ± 0.20	16.40 ± 0.18
	41.10–44.65	21.30–24.75	10.95–13.00	16.65–18.10	15.60–16.80
	13 1.18	13 1.07	18 0.61	15 0.40	12 0.34
Females	42.77 ± 0.92	23.44 ± 0.42	11.77 ± 0.20	17.64 ± 0.14	16.45 ± 0.12
	40.20–44.65	21.70–24.55	11.00–12.65	17.05–18.10	16.15–17.00
	10 1.46	16 0.84	18 0.44	15 0.30	12 0.23

Sex	Maxillary tooth row length	Nasal length	Nasal width	Mandibular tooth row length
Males	6.68 ± 0.10	14.88 ± 0.38	3.46 ± 0.20	6.78 ± 0.12
	6.25–7.05	13.70–16.40	2.75–4.50	6.15–7.30
	19 0.23	14 0.72	17 0.44	19 0.26
Females	6.61 ± 0.10	14.63 ± 0.28	3.41 ± 0.12	6.68 ± 0.08
	6.00–7.15	13.05–16.05	2.90–4.20	6.10–7.15
	24 0.25	21 0.65	22 0.30	23 0.22

thus were collected more easily, in the fall than at other times of the year. Information on home range in relation to the burrow system was provided by Yahner (1978), and a detailed review of foraging ecology of eastern chipmunks was presented by Elliott (1978). The chronology of annual events in populations of eastern chipmunks in relation to climate was summarized by Yahner and Svendsen (1978).

Entrances to burrows of *Tamias* in Louisiana and adjacent Mississippi were at the upper edges of ravines and often near or among roots of trees, as noted by Thomas (1974) and Lowery (1974). In Florida, openings to burrows were frequently on the forest floor, and were usually nearly obscured by leaves and litter.

Sexual variation in the sample of *T. striatus* from Wilkinson County, Mississippi, is documented in Tables 1 and 2. Females appear slightly larger than males in two of the four external characters compared (Table 1). However, males average slightly larger than females in seven of the nine skull characters analyzed (Table 2). Because sexual differences are slight (also see Lowery, 1974) for the measurements recorded, data from the sexes are considered together for the subsequent analysis of geographic variation.

Character variation among the samples considered is shown in Tables

Table 3. Variation of external characters among samples of *Tamias striatus*. Geographic origins of samples are provided in the text. The numbers for each measurement include the mean plus and minus two standard errors, the extremes, the sample size, and the standard deviation.

Sample	Total length	Tail length	Hindfoot length	Ear length
B	250.09 ± 11.74	85.80 ± 11.06	32.31 ± 3.30	15.30 ± 1.72
	223.00–292.00	45.00–110.00	20.00–38.00	11.00–20.00
	12 20.33	12 19.17	12 5.74	12 2.98
C	262.09 ± 10.88	100.47 ± 7.20	32.99 ± 2.94	18.00 ± 2.58
	218.00–310.00	60.00–132.00	20.00–47.00	11.00–30.00
	21 24.93	21 16.51	21 6.76	21 5.95
D	270.00 ± 13.60	113.00 ± 3.04	29.33 ± 17.52	13.66 ± 2.40
	257.00–280.00	110.00–115.00	13.00–43.00	12.00–16.00
	3 11.78	3 2.64	3 15.17	3 2.08
F	290.20 ± 16.24	104.60 ± 5.70	22.50 ± 8.66	11.60 ± 3.20
	275.00–310.00	100.00–113.00	10.00–30.00	10.00–18.00
	5 18.17	5 6.38	4 8.66	5 3.57
G	252.50 ± 18.00	94.87 ± 8.76	35.18 ± 1.36	12.81 ± 1.30
	150.00–290.00	65.00–115.00	30.00–42.00	14.00–23.00
	16 36.00	16 17.54	16 2.73	16 2.61
I	259.80 ± 19.82	91.80 ± 11.22	32.80 ± 4.48	17.80 ± 0.74
	233.00–284.00	75.00–109.00	22.00–37.00	17.00–19.00
	5 22.16	5 12.55	5 6.14	5 0.83
J	248.58 ± 8.32	86.62 ± 5.84	36.11 ± 0.52	19.71 ± 1.10
	212.00–288.00	46.00–110.00	34.00–38.00	17.00–25.00
	40 19.53	40 13.70	51 1.33	51 1.41
K	242.42 ± 7.34	90.36 ± 6.12	36.57 ± 0.50	18.33 ± 0.44
	215.00–270.00	48.00–100.00	35.00–39.00	17.00–20.00
	19 16.02	19 13.37	19 1.12	18 0.97
L	234.15 ± 10.82	87.25 ± 5.28	35.64 ± 1.32	15.66 ± 4.04
	182.00–267.00	71.00–114.00	32.00–42.00	12.00–19.00
	14 20.26	14 9.87	14 2.47	3 3.51
M	252.21 ± 6.48	91.85 ± 4.26	34.90 ± 1.10	18.85 ± 0.66
	226.00–285.00	46.00–115.00	26.00–40.00	15.00–22.00
	28 12.17	28 11.30	32 3.13	32 1.87

3 and 4. Because of either incomplete data or small sample sizes, Samples A, E, and H are not included in these tables. External measurements vary more than most skull measurements.

In external features, the smallest animals are from Georgia and western Mississippi, with larger animals occurring in southwestern Mississippi, Florida, and Louisiana (Table 3). Study of skull measurements also shows that the smallest animals are from Georgia, with larger forms from southwestern Mississippi, Louisiana, and Florida (Table 4). Lowery (1943, 1974) characterized the eastern chipmunks from Louisiana (*T. s. pipilans*) as the largest of all *T. striatus*. The animals from Florida are similar, although

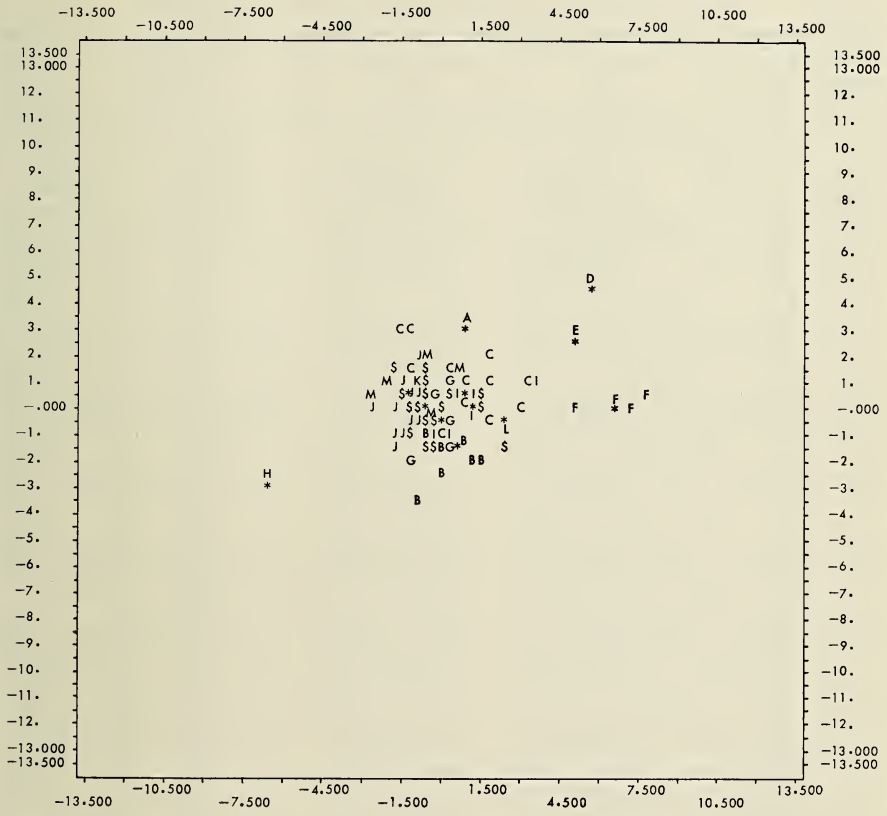

Fig. 1. Plot of the first and second canonical variates. Letters refer to the samples listed in the text. Overlaps are indicated by $ and group means are indicated by *.

sometimes slightly larger in some characters, to those from Louisiana and nearby localities in Mississippi. From north to south, then, across about five degrees of latitude, there is a general increase in the size of the animals studied. The largest animals are found at about the same latitudes in west Florida, Louisiana, and southwestern Mississippi. For a discussion of the large size of southern *Tamias*, as well as information about size in connection with the fossil history of the genus, see Ray (1965).

We did not analyze pelage color because of the foxed condition of many of the museum specimens examined. Lowery (1943) states that *T. s. pipilans* is the most richly colored of all eastern chipmunks. Specimens of *Tamias* from west Florida seem similar in color to those from Louisiana and southwestern Mississippi.

The plot of the specimens on the first and second canonical variates from

Table 4. Variation of skull characters among samples of *Tamias striatus*. Geographic origins of samples are provided in the text. The numbers for each measurement include the mean plus and minus two standard errors, the extremes, the sample size, and the standard deviation.

Sample	Greatest length of skull	Zygomatic breadth	Interorbital breadth	Cranial breadth	Cranial depth
B	42.92 ± 0.76	23.87 ± 0.38	11.62 ± 0.26	17.32 ± 0.26	16.01 ± 0.14
	41.65–44.45	22.40–24.60	11.10–12.55	16.55–18.15	15.75–16.50
	9 1.14	12 0.69	14 0.50	14 0.49	10 0.23
C	43.36 ± 0.52	24.06 ± 0.34	12.13 ± 0.24	17.55 ± 0.14	16.36 ± 0.14
	41.00–45.75	21.80–25.15	11.05–12.95	16.80–18.15	15.70–16.85
	19 1.15	17 0.71	19 0.53	20 0.34	18 0.31
D	43.42 ± 1.84	23.67 ± 0.94	11.82 ± 1.54	17.65 ± 0.20	16.52 ± 0.14
	42.50–44.35	23.20–24.15	11.05–12.60	17.50–17.25	16.45–16.60
	2 1.30	2 0.67	2 1.09	2 0.14	2 0.10
F	44.18 ± 1.00	24.40 ± 0.30	12.36 ± 1.10	17.23 ± 0.34	16.65 ± 0.90
	43.25–45.00	24.25–24.55	11.35–13.95	16.90–17.50	16.20–17.10
	3 0.88	2 0.21	4 1.11	3 0.30	2 0.63
G	42.25 ± 1.02	23.47 ± 0.50	11.83 ± 0.24	17.67 ± 0.30	16.39 ± 0.24
	39.45–43.90	22.55–24.05	11.00–12.55	16.75–18.35	15.90–16.75
	8 1.46	7 0.63	13 0.46	9 0.45	6 0.31
I	42.95 ± 1.16	23.00 ± 0.56	11.91 ± 0.46	17.25 ± 0.34	16.20 ± 0.42
	41.20–45.15	22.50–23.80	11.10–12.66	16.55–17.65	15.65–16.95
	6 1.43	4 0.47	6 0.58	6 0.43	5 0.47
J	42.96 ± 0.78	23.45 ± 0.25	11.90 ± 0.24	17.54 ± 0.85	16.43 ± 0.14
	40.65–44.65	21.50–24.65	10.97–12.82	16.85–18.10	15.87–17.00
	23 1.32	29 0.80	36 0.52	30 0.35	24 0.28
K	43.87 ± 0.34	23.84 ± 0.46	12.29 ± 0.72	17.81 ± 0.28	16.63 ± 0.38
	43.50–44.45	23.20–24.65	11.45–13.45	17.55–18.20	16.25–16.90
	5 0.38	6 0.58	5 0.82	4 0.28	3 0.34
L	42.25 ± 0.64	23.10 ± 0.44	11.45 ± 0.40	17.19 ± 0.28	15.97 ± 0.30
	40.40–44.10	22.35–23.85	10.55–12.60	16.35–17.80	15.30–16.60
	9 0.97	8 0.64	11 0.67	9 0.43	10 0.49
M	43.11 ± 0.80	23.12 ± 0.44	11.53 ± 0.28	17.49 ± 0.22	16.30 ± 0.22
	39.90–45.75	20.15–24.40	9.70–12.90	16.35–18.10	15.45–17.45
	17 1.66	22 1.04	23 0.71	16 0.45	17 0.47

the discriminant function analysis depicts the relationships among the samples studied (Fig. 1). The extensive overlap indicates the difficulty of separating the samples from each other, at least on the basis of the measurements used in this study. These results are in concordance with the extensive overlap in the univariate data.

From these data, there is no apparent reason to consider the population of *T. striatus* in Florida and adjacent Alabama taxonomically distinct from the populations in Louisiana and Mississippi. Further, in view of the general

Table 4. Continued.

Sample	Maxillary tooth row length	Nasal length	Nasal width	Mandibular tooth row length
B	6.70 ± 0.16	14.13 ± 0.50	3.34 ± 0.28	6.99 ± 0.20
	6.10–7.20	11.80–15.60	2.45–4.40	6.40–7.75
	14 0.31	14 0.94	14 0.55	14 0.40
C	6.68 ± 0.12	14.79 ± 0.14	3.59 ± 0.18	6.85 ± 0.14
	6.05–7.45	13.40–15.70	2.80–4.70	6.15–7.60
	22 0.32	23 0.59	23 0.44	23 0.36
D	6.93 ± 0.22	14.95 ± 1.10	3.75 ± 0.00	6.80 ± 0.34
	6.60–7.05	14.40–15.50	3.75–3.75	6.50–7.25
	4 0.22	2 0.77	2 0.00	4 0.34
F	6.53 ± 0.24	15.25 ± 0.38	3.40 ± 0.28	6.68 ± 0.36
	6.25–6.80	14.85–15.80	3.00–3.70	6.40–7.20
	4 0.25	4 0.39	4 0.29	4 0.36
G	6.39 ± 0.16	14.56 ± 0.40	3.26 ± 0.12	6.52 ± 0.16
	5.85–7.05	12.95–15.90	2.90–3.85	6.05–7.00
	16 0.34	15 0.80	15 0.23	15 0.32
I	6.49 ± 0.24	15.16 ± 0.48	3.75 ± 0.48	6.75 ± 0.24
	6.15–6.85	14.45–16.00	2.95–4.65	6.35–7.15
	6 0.31	6 0.60	6 0.61	6 0.30
J	6.64 ± 0.10	14.75 ± 0.32	3.44 ± 0.32	6.75 ± 0.10
	6.00–7.15	13.15–16.40	2.75–4.50	6.10–7.30
	43 0.24	35 0.68	39 0.37	42 0.24
K	6.67 ± 0.74	15.17 ± 0.32	3.72 ± 0.28	6.95 ± 0.18
	6.50–6.80	14.60–15.80	3.15–4.35	6.70–7.30
	7 0.09	7 0.43	7 0.39	7 0.24
L	6.35 ± 0.14	14.33 ± 0.48	3.49 ± 0.30	6.54 ± 0.16
	6.00–6.80	12.70–15.70	2.50–4.25	6.05–6.95
	11 0.26	11 0.80	12 0.54	10 0.26
M	6.67 ± 0.08	14.43 ± 0.38	3.39 ± 0.10	6.82 ± 0.08
	6.30–7.15	12.80–16.25	2.90–4.05	6.20–7.20
	32 0.23	27 0.99	31 0.30	31 0.24

trend in size from north to south and the variation in size among animals from several places in Mississippi (Tables 1–4, Fig. 1), we see little justification for taxonomically separating the populations of eastern chipmunks in Louisiana and Mississippi from populations of *T. s. striatus* that occur to the north. We believe that all eastern chipmunks in Florida, Alabama, Mississippi, and Louisiana should be assigned to *T. s. striatus*.

Tamias striatus is recognized as rare on the lists of rare and endangered vertebrates of the state of Florida (Jones, 1976). This determination is based primarily on the restricted range of the species in Florida and the destruction of habitat in the area.

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